

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 31 AUG 2005

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Applicant's or agent's file reference 62886A		FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/US2004/018234		International filing date (day/month/year) 08.06.2004	Priority date (day/month/year) 09.06.2003	
International Patent Classification (IPC) or national classification and IPC H01B3/00				
Applicant UNION CARBIDE CHEMICALS & PLASTICS TECHN...ET AL.				
<p>1. This report is the International preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 06.01.2005		Date of completion of this report 30.08.2005		
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer Stinchcombe, J Telephone No. +31 70 340-		



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/018234

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-18 as originally filed

Claims, Numbers

1-32 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/018234

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-32
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-32
Industrial applicability (IA)	Yes: Claims	1-32
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V.

- 1 The following documents are referred to in this communication:
D1 : EP 1 052 654 A (UNION CARBIDE CHEMICALS & PLASTICS
TECHNOLOGY CORPORATION) 15 November 2000 (2000-11-15)
D2 : US 6 492 453 B1 (EBRAHIMIAN SHAHZAD ET AL) 10 December 2002
(2002-12-10)
- 2 Document D1 discloses (the references in parentheses applying to this document) a polymer resin composition comprising a) copolymer of ethylene with unsaturated ester (i.e. vinyl ester, acrylic acid ester, methacrylic acid ester), b) nanoparticles, and c) carbon black, which composition is cross-linkable for use as an insulation shield for a power cable (see paras 6-8, 13, 21, 24, 25 & 27 and examples 3 & 4).

2.1 INDEPENDENT CLAIM 1

- 2.1.1 Document D1, which is considered to represent the most relevant state of the art, discloses a composition from which the subject-matter of independent claim 1 differs in that the nanoparticles have been treated with a swelling agent. The effect of this difference is to increase the fire performance properties of the composition.
- 2.1.2 The *objective* problem to be solved by the present invention may therefore be regarded as how to increase the hydrophobicity of the surfaces of nanoclay particles to enhance their fire performance (see D2 col 4 lines 4-10).
- 2.1.3 In view of D2, the solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) because D2 gives a clear indication to modify the nanoparticles to make them more hydrophobic (swelling agent) to enhance the fire performance properties in a similar composition to that in D1.
- 2.1.4 Therefore the features disclosed in D1 and D2 would be combined by the skilled person, without exercise of any inventive skills in order to solve the problem posed. The proposed solution in independent claim 1 thus cannot be considered inventive (Article 33(3) PCT).

2.2 INDEPENDENT CLAIMS 5, 10, 14, 18 & 26

2.2.1 The same argumentation as applied in 2.1.1 - 2.1.4 applies. The proposed solutions in independent claims 5, 10, 14, 18 & 26 thus cannot be considered inventive (Article 33(3) PCT).

2.3 INDEPENDENT CLAIM 31

2.3.1 Claim 31 relates to a method for preparing the composition of claim 1 and contains no additional features beyond those of D1 combined with D2 which can be considered as involving an inventive step within the meaning of Article 33(3) PCT.

3 DEPENDENT CLAIMS 2-4, 6-9, 11-13, 15-17, 19-25, 27-30 & 32

Dependent claims 2-4, 6-9, 11-13, 15-17, 19-25, 27-30 & 32 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT).

4 PARAMETER

The parameters relating to strip force and initial strip force used in the independent claims are not considered as characterizing or distinguishing features of the invention claimed, in that these parameters are only fulfilled as a result of the use of particular materials and methods of preparation. Since the materials and method of D1 & D2 are similar to those of the application, it is assumed that the composition obtained by combining the teaching of these prior art documents would also fulfill the parameter.

Re Item VIII.

The employment of obscure or difficult-to-measure parameters to characterize an invention is objectionable on grounds of clarity (see PCT Guidelines PCT/GL/ISPE/1 5.36). In the current case, the parameters relating to strip force and initial strip force used in the independent claims appear to fall into this category.